

### **Amendments to the Claims**

**1. (Original)** A gene recombination vector containing an expression cassette for enhancing photosynthesis activity, comprising a DNA fragment comprising a gene encoding a protein having FBPase and/or SBPase activities between a Rubisco large subunit gene and an acetyl CoA carboxylase subunit gene.

**2. (Original)** The vector as claimed in claim 1, wherein the protein having FBPase activity is any one of the followings;

(a) a protein comprising an amino acid sequence described in SEQ ID NO: 1 of Sequence Listing;

(b) a protein comprising an amino acid sequence in which one or several amino acids are deleted, substituted, added or inserted in SEQ ID NO: 1 of Sequence Listing, and having FBPase activity; and

(c) a protein having at least 60% or more homology to an amino acid sequence described in SEQ ID NO: 1 of Sequence Listing, and having FBPase activity.

**3. (Original)** The vector as claimed in claim 1, wherein the gene encoding a protein having FBPase activity is a gene comprising any one of the following DNAs;

(a) DNA comprising a nucleotide sequence described in SEQ ID NO: 2 of Sequence Listing;

(b) DNA comprising a nucleotide sequence in which one or several bases are deleted, substituted, added or inserted in SEQ ID NO: 2 of Sequence Listing, and encoding a protein having FBPase activity;

(c) DNA which hybridizes with DNA comprising a nucleotide sequence complementary to DNA comprising a nucleotide sequence described in SEQ ID NO: 2 of Sequence Listing under stringent conditions, and comprises a nucleotide sequence encoding a protein having FBPase activity; and

(d) DNA having at least 60% or more homology to DNA comprising a nucleotide sequence described in SEQ ID NO: 2 of Sequence Listing, and comprising a nucleotide sequence encoding a protein having FBPase activity.

**4. (Original)** The vector as claimed in claim 1, wherein the protein having SBPase activity is any one of the following proteins;

(a) a protein comprising an amino acid sequence described in SEQ ID NO: 3 of Sequence Listing;

(b) a protein comprising an amino acid sequence in which one or several amino acids are deleted, substituted, added or inserted in SEQ ID NO: 3 of Sequence Listing, and having SBPase activity; and

(c) a protein having at least 60% or more homology to an amino acid sequence described in SEQ ID NO: 3 of Sequence Listing, and having SBPase activity.

**5. (Currently amended)** The vector as claimed in claim 1, wherein the gene encoding a protein having SBPase activity is a gene comprising any one of the following DNAs;

(a) DNA comprising a nucleotide sequence described in SEQ ID NO: 4 of Sequence Listing;

(b) DNA comprising a nucleotide sequence in which one or several bases are deleted, substituted, added or inserted in SEQ ID NO: 4 of Sequence Listing, and encoding a protein having SBPase activity;

(c) DNA which hybridizes with DNA comprising a nucleotide sequence complementary to DNA comprising a nucleotide sequence described in ~~SDQ~~ SEQ ID NO: 4 of Sequence Listing under stringent conditions, and comprises a nucleotide sequence encoding a protein having SBPase activity; and

(d) DNA having at least 60% or more homology to DNA comprising a nucleotide sequence described in ~~SDQ~~ SEQ ID NO: 4 of Sequence Listing, and comprising a nucleotide sequence encoding a protein having SBPase activity.

**6. (Original)** The vector as claimed in claim 1, wherein the protein having FBPase and SBPase activities is any one of the followings:

(a) a protein comprising an amino acid sequence described in SEQ ID NO: 5 of Sequence Listing;

(b) a protein comprising an amino acid sequence in which one or several amino acids are deleted, substituted, added or inserted in SEQ ID NO: 5 of Sequence Listing; and having FBPase and SBPase activities; and

(c) a protein having at least 60% or more homology to an amino acid sequence described in SEQ ID NO: 5 of Sequence Listing; and having FBPase and SBPase activities.

**7. (Original)** The vector as claimed in claim 1, wherein the gene encoding a protein having FBPase and SBPase activities is a gene comprising any one of the following DNAs;

(a) DNA comprising a nucleotide sequence described in SEQ ID NO: 6 of Sequence Listing;

(b) DNA comprising a nucleotide sequence in which one or several bases are deleted, substituted, added or inserted in SEQ ID NO: 6 of Sequence Listing, and encoding a protein having FBPase and SBPase activities;

(c) DNA which hybridizes with DNA comprising nucleotide sequence complementary to a DNA comprising a nucleotide sequence described in SEQ ID NO: 6 of Sequence Listing under stringent conditions, and comprises a nucleotide sequence encoding a protein having FBPase and SBPase activities; and

(d) DNA having at least 60% or more homology to DNA comprising a nucleotide sequence described in SEQ ID NO: 6 of Sequence Listing, and comprising a nucleotide sequence encoding a protein having FBPase and SBPase activities.

**8. (Currently amended)** The vector as claimed in ~~any one of claims 1 to 7~~ claim 1, wherein the expression cassette has a ribosome-binding site upstream of a translation initiation point of a DNA fragment comprising a gene encoding a protein having FBPase and/or SBPase activities.

**9. (Original)** The vector as claimed in claim 8, wherein the expression cassette has a promoter upstream of a ribosome-binding site, and a terminator downstream of DNA fragment comprising a gene encoding a protein having FBPase and/or SBPase activities.

**10. (Original)** The vector as claimed in claim 9, wherein the promoter and the terminator are a promoter and a terminator derived from tobacco chloroplasts, respectively.

**11. (Currently amended)** The vector as claimed in ~~any one of claims 1 to 10~~ claim 1, wherein the Rubisco large subunit gene and the acetyl CoA carboxylase subunit gene are genes derived from tobacco, respectively.

**12. (Original)** A recombinant gene vector comprising an expression cassette containing a DNA fragment comprising a gene encoding a protein having FBPase and/or SBPase activities between a tobacco-derived Rubisco large subunit gene and an acetyl CoA carboxylase subunit gene, having a ribosome-binding site upstream of a translation initiation point of the DNA fragment, having a tobacco-derived promoter between a Rubisco large subunit gene and a ribosome-binding site, and having a tobacco-derived terminator between the acetyl CoA carboxylase subunit gene and the DNA fragment.

**13. (Currently amended)** A transformed chloroplast characterized in that the vector according to ~~any one of claims 1 to 12~~ claim 1 is introduced into chloroplasts.

**14. (Original)** A plant containing transformed chloroplasts according to claim 13.

**15. (Original)** The plant as claimed in claim 14, wherein the plant is tobacco.

**16. (Currently amended)** A plant having 2-fold or higher FBPase activity compared to the original one, characterized in that a FBPase/SBPase gene is introduced into the chloroplast genome of higher plants and expressed using a chloroplast transformation technique.

17. (New) A plant having two-fold or higher enhanced photosynthesis rate as compared with the wild variety, characterized in that a FBPase/SBPase gene is introduced into the chloroplast genome of higher plants using a vector according to claim 1, followed by expression.